

Comments on

Pines FS_Figures_November 29_2012

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General Comments

1. Radiation data taken by the responsible parties for the U.S. Environmental Protection Agency Region 5 (USEPA5) Yard 520 site does not appear to have been taken according to the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) protocols. USEPA5 made clear at the November 1, 2012, Northwestern Indiana Regional Planning Commission, Environmental Management Policy Committee, meeting that radiation data must be taken by this protocol. USEPA5's stance would seem to indicate they would not support data taken without adherence to the MARSSIM protocol, as provided in this Feasibility Study.
2. No risk assessment has been made for CCB contaminated surface soils in the Pines.

The calculations made for the Human Health Risk Assessment were: (1) for radioactive soils in uncontaminated areas (background) and (2) for the cleanup criterion in Title 40, Part 192 (40 CFR 192). These did not quantify any risk due to depositions of CCB's in surface soils in the Town of Pines.

The lack of a radiation risk assessment is due to the fact that no soil samples were taken and analyzed in Pines areas shown to contain CCB's.


"Soil samples for chemical and radiological analysis were not collected from individual residential properties, and soil samples (possibly including some percentage of CCBs) have not been collected across much of the Pines Area of Investigation."

[Attachment A2 to Appendix A - Response to USEPA comments dated August 31, 2012 regarding the Alternatives Screening Technical Memorandum – Item 11]

Although Figure 4 (Results of Suspected CCB Visual Inspections) below shows an extensive distribution of CCB throughout the Town of Pines, the sampled areas as shown in Figure 8 (Sample Locations and Results,

Background Surface Soil) below, with the possible exception of SS009, all appear to be in uncontaminated areas.

No data or maps show surface soil samples were taken in CCB depositions areas as shown in Figure 4.



Exemption 6

Exemption 6

3. Soils collected for radiation analyses were taken in a way that may have diluted the concentration.

Radium standards for USEPA radiation cleanups in 40 CFR 192 are based on concentrations of 15 centimeter (6 inch) layers.

Soil samples taken in the Town of Pines were in 12 inch aliquots - See Table 2-10 (Background Surface Soil Analytical Results for Radiological Parameters, Pines Area of Investigation). For example, if the CCB contaminants were only in the top 6 inches of soil and the 6 – 12 inch layer was at background concentration then combining soils from these two layers, 0 -12 inches, would dilute the result. Numerically, for example, if the top layer had a total radium concentration of 7 picocuries per gram (pCi/gm) and the lower layer was at background, 1.596 pCi/gm (page 1244 of FS), then the 12 inch aliquot would have a concentration of 4.298 pCi/gm. The top layer by itself would exceed a cleanup criterion of 6.596 pCi/gm (page 1244 of FS) but the 0 – 12 inch sample would not.

4. The responsible parties have stated (see comment 11 below) that they feel that obtaining additional data on CCB related COC's at the ground surface

of private properties, particularly at residences, and evaluating it is appropriate. They will submit a work plan to collect samples, do laboratory analyses, and evaluate it.

Attachment A1 to Appendix A - Response to USEPA comments dated April 18, 2012 regarding the Remedial Action Objectives Technical Memorandum

Specific Comments

1. See Final RI, Table 2-1, Summary of Samples Analyzed, footnotes

(d) – Total U, lithium, and radionuclides in groundwater were not analyzed after the August 2006 sampling event per USEPA approval (see Appendix E).

(e) – Total U added during the August 2006 sampling event per USEPA approved FCO (see Appendix A).

These omissions delete crucial constituent data pursuant to USEPA Drinking Water Standards, 40 CFR 141.66. Radionuclide data are critical to determining human health risks from groundwater and drinking water.

No radionuclides in groundwater data appear to have been taken since 2006. Data for the present state of groundwater is critical and should be obtained promptly.

2. In the response for item 13,

Prevent the installation of private wells and use of groundwater for drinking in all areas where COC concentrations are greater than background levels that are unaffected by site-related contamination and are associated with risks within and/or above USEPA's target risk range of 1E-06 to 1E-04 and a target endpoint specific hazard index of 1.

This response should recognize USEPA Primary Drinking Water Standards for radionuclides, 40 CFR 141.66, as well as standards for chemicals, and should ensure that all wells, including new ones, meet all standards.

3. The following response from item 13 is very important as it commits the responsible parties to collect data on groundwater for USEPA5 to confirm USEPA 40 CFR 141.66 radiation standards apply subsequent to remediation.

Response: RAO 5 has been revised to read: Restore groundwater to achieve and maintain ARARs, including federal and state drinking water standards and ambient water quality standards, protective levels (corresponding to risks within and/or above USEPA's target risk range of 1E-06 to 1E-04 and a target endpoint specific hazard index of 1) and/or background levels that are unaffected by site related contamination for CCB-related constituents within a timeframe that is reasonable considering practicable response action alternatives.

4. Pursuant to a response in Item 13 which reads:

Reduce or eliminate potential exposure to CCB- and site related COC concentrations at or near the ground surface greater than background levels that are unaffected by site-related contamination and associated with risks within and/or above USEPA's target risk range of 1E-06 to 1E-04 and a target endpoint specific hazard index of 1.

Radioactive materials are COC's and have been found on the ground surface of residential, private, and municipal land in Pines (PINES Group surveys in 2009, 2012) that are statistically distinct from background levels.

The PINES Group did not locate any gamma-ray and X-ray count rate data nor radionuclide soil concentration data for surface CCB deposits in this or any other site-related EPA document. Risk could result from exposure to gamma-rays and X-rays emanating from these soils and further from inhalation, ingestion and pica. The commitment stated in item 13 should apply to the radioactive materials as well.

5. Further, pursuant to a response in Item 13 which reads:

Prevent the installation of private wells and use of groundwater for drinking in all areas where COC concentrations are greater than background levels that are unaffected by site-related contamination and are associated with risks within and/or above USEPA's target risk range of 1E-06 to 1E-04 and a target endpoint specific hazard index of 1.

Federal drinking water standards are an ARAR, which includes radionuclides in 40 CFR 141.66. The commitment above is essential to protect human health.

6. Additionally, pursuant to a response in Item 13 which reads:

Monitor groundwater upgradient and downgradient of CCB fill areas to demonstrate remedial progress and determine when potential beneficial uses of groundwater (drinking and discharge to surface water) are met (i.e., achieving and maintaining ARARs including federal and state drinking water standards and ambient water quality standards, protective levels (corresponding to risks within and/or above USEPA's target risk range of 1E-06 to 1E-04 and a target endpoint specific hazard index of 1) and/or background levels that are unaffected by site-related contamination for CCB-related constituents).

Federal drinking water standards are an ARAR, which includes radionuclides in 40 CFR 141.66. Groundwater monitoring must demonstrate that this ARAR is met for radionuclides as well.

Attachment A2 to Appendix A - Response to USEPA comments dated August 31, 2012 regarding the Alternatives Screening Technical Memorandum

Specific Comments

7. The following statement was made in item 1:

"While there is no information as to the percent CCBs in subsurface soils, the majority of potential

residential exposure is to surface soils."

CCB's appear to be present in subsurface soils, perhaps extensively. A citizen of Pines took the following picture during road work that shows a seam of material, potentially bottom ash, approximately 4 feet thick. Remediation actions must be cognizant of this potential.



It was stated in the Remedial Investigation Report of March 5, 2010, in the Potential Human Receptors Section (page ES-3) that, "Construction workers may potentially contact surface and subsurface CCB's directly via incidental ingestion and dermal contact." It should also be stated that gamma-ray / X-ray exposure may occur.

The Town of Pines is investigating installation of a sewer network. Workers doing this work may encounter radioactive CCB's that could be potentially hazardous.

8. The following statement was made in item 11:

“Soil samples for chemical and radiological analysis were not collected from individual residential properties, and soil samples (possibly including some percentage of CCBs) have not been collected across much of the Pines Area of Investigation.”

This statement acknowledges a major deficiency in this investigation. The PINES Group (People in Need of Environmental Safety) has conducted two gamma-ray surveys of residential, private, and municipal soils in 2009 and 2012. These both clearly showed many areas statistically above background radiation count rate levels. All sites showing above twice background count rates are associated with a black glittery material that seems to have the characteristics of bottom ash. Gamma exposure rates, isotope identification, and soil concentrations have not been measured in affected areas by EPA or EPA-related responsible parties, resulting in deficiencies in the data base and in the risk assessment for residential, private, and municipal properties. Many questions have yet to be addressed:

- a. What are the gamma exposure rates in affected areas in the Pines?
- b. What are the qualitative radiation risks for citizens, workers, and town visitors from exposure to these gamma-ray / X-ray emitting soils?
- c. What are the emitting isotopes in these areas and are they associated with CCBs?
- d. What are the soil concentrations in these areas and do they exceed USEPA criteria such as in 40 CFR 192?
- e. If properties are backfilled with these materials are radon levels elevated in homes or buildings?
- f. What are the radiation levels in Pines drinking water, per 40 CFR 141.66?

- g. What are the numerical radiation risks associated with gamma-ray / X-ray emitting soils?

9. The following statement was made in item 17:

Six years of available data indicate that the current extent of CCB-related COCs in groundwater is contained. However, the containment option may be effective at reducing possible future migration and, potentially, reducing the extent of the impacted area.

As noted above in comment 1 from the Final RI, all radionuclide sampling in groundwater was terminated in 2006. No radionuclide data is available to confirm or refute the statement that “CCB-related COCs in groundwater is contained.”

10. The following statement was made in item 23:

Response: While there is certainly precedence for removal actions on residential properties at other CERCLA sites, it is important to also consider the risk assessment context of such sites and the target risk levels used to make those specific remedial decisions. The following sentence was added to the first bullet:

Removal at selective locations with CCBs is potentially feasible (e.g., residential yards, schools, churches, and playgrounds), where it is demonstrated to be warranted.

A new second bullet as added as follows:

An option associated with institutional controls would be to require the removal of CCBs beneath roads or portions of roads (i.e., utility trenches) and replacement with clean fill as part of maintenance activities.

Removal actions for radioactive materials have been used by USEPA Region 5 many times and are not only feasible but implementation is well understood. The problem in Pines is that data has not been collected to determine if the risk associated with these materials would lead to such action being warranted. Moreover, without attention to this issue citizens and municipal workers may be adversely affected through inadvertent exposure or intrusion. Most worrisome at this time is the potential extension of municipal sewers from Michigan City into Pines with the potential for unnecessary and adverse exposure of workers.

11. Comment 30 states:

Section 6.2.4 Alternative 4 and Additional Data Evaluation and Review and Table 9, page 2 first row. Section 6.2.4 and the corresponding row of Table 9 discuss the need for obtaining additional data and evaluating it before

providing an analysis of potential options regarding CCB-related COCs at the ground surface. At this time, based on the data, this seems appropriate. This further supports the idea presented above of separating alternatives into two groups (groundwater and surficial soils / sediments). Given additional data are going to be collected, some data from the surface soils of private properties, particularly those of residences or other sensitive receptors, should be strongly considered...

Response: The Respondents will submit a work plan for the collection and evaluation by particulate matter analysis followed by analytical chemistry, where warranted, of additional background soil samples. This work will involve renewal or acquisition of new access agreements, sample collection, laboratory analysis, data validation, and data evaluation...

The data submitted to USEPA5 by the PINES Group in 2009 and 2012 on radioactive count rate measurements would seem to indicate a need to additional sampling as discussed in the above quote.

No data has been collected by the responsible parties on the identity of radionuclides, their exposure rate, and their concentration in Pines soils where CCB's were identified. As a result the Human Health Risk Assessment issued by the responsible parties does not calculate the risk from radioactive materials. It calculates the risk from background radionuclides (non-contaminants) and from the cleanup criterion, nothing more. With no data collected from CCB areas, a quantitative risk for contaminated soils cannot be computed.

12. OCTOBER 2011 GROUNDWATER MONITORING REPORT Yard 520 RWS Pines, Indiana

These reports do not include radionuclides. Since USEPA has standards for drinking water in 40 CFR 141.66 this is a significant oversight.

Appendix E

13. Evaluation of Background Soils Data

This discussion indicates that surface soil samples collected were from background areas, not areas that showed the presence of CCB's.

14. Radionuclide HHRA

Table 4 shows only background data, not data for CCB depositions. Table 5 shows risks associated with background and a cleanup criterion. This section does not evaluate risk from CCB deposition sites in Pines although Figure 4 (see General Comment 2 above)

shows visual examinations which show such deposits are extensive. An HHRA for radionuclides must show the risks associated with depositions of CCB in the surface soils of Pines.

Appendix F

- 15.** The opening paragraph begins, “This appendix provides a work plan for collecting additional samples of surface soil from background locations to support the Feasibility Study (FS) for the Pines Area of Investigation...” This only commits to obtaining more background samples without obtaining samples from known sites of CCB’s (see Figure 3.18 in the Remedial Investigation and Figure 4 for comment 2 above). What is lacking in the data base are samples and corresponding analyses from sites where CCB’s were visually identified. It serves little to create data for hypothetical scenarios when direct sampling would provide data that would not require hypothetical judgments.
- 16.** For the paragraph beginning “The background soil HHRA...” it is stated that samples were collected according to the Yard 520 Sampling and Analysis Plan. As noted in General Comment 1 above, USEPA5 has made clear that samples should be collected according to MARSSIM. Therefore, sample collection should be according to USEPA’s MARSSIM protocols.

17. Laboratory Analyses

In the paragraph beginning, “The laboratory analysis...” it is stated that CAS and GEL will only be authorized to analyze samples RJ Lee Group as designated as free of bottom ash. Based on the PINES Group surveys of 2009 and 2012 it is very probable that the bottom ash is the radioactive constituent. To eliminate it from analysis is to introduce an unwarranted bias in the samples.

- 18.** The method of radioactive analysis is not stated. At the very least these should be by GeLi gamma spectroscopy protocols consistent with those of USEPA’s National Air and Radiation Environmental Laboratory.

Appendix G

19. Statement of the Issue

The HHRA is based on background samples, not samples collected from sites suspected to contain CCB's as shown in Figure 4 for General Comment 2 above.

20. The HHRA is based on a garden scenario when a gamma-ray / X-ray exposure is a highly probable, significant, exposure pathway as well. A gamma-ray / X-ray pathway should be part of any HHRA.
21. For the residential site-specific 27% CCB scenario, radium-226 and radium-228 were included. This were not included for the 100% CCB scenario. Radium-226 and radium-228 are significant contaminants of concern. They should not be omitted.
22. For the paragraph beginning, "As noted above..." it should be clarified that 5 pCi/g plus the sum of the radiums, per 40 CFR 192.12, should be viewed more than a background standard. It should be the intended cleanup criterion.

23. Objective

The intent to determine if "COC's exceed background levels and/or preliminary remediation goals..." allows for a conclusion that results do not exceed background levels when results exceed a PRG but no conclusion says so. The statement should be written, "COC's exceed either background levels or preliminary remediation goals..."

24. Scope of Work

Properties 1, 2, 3 are only properties with suspected CCB's as noted in Table I-2. Sampling should occur where CCB's are known to be present by direct sampling.

25. Sampling Procedure

USEPA has stated that sampling should be done by MARSSIM methods.

26. In the paragraph beginning, "In accordance..." it stated that composite samples will be taken in an aliquot from 0 – 18 inches. 40 CFR 192.12 is based on 0 – 15 centimeter (0 – 6 inch) aliquots. Thus, samples should be taken in 15 centimeter aliquots so as to follow the criteria of 40 CFR 192. Moreover, if samples are taken

in 18 inch aliquots the sample results may be diluted when contaminants are on the surface.

Attachment A to Appendix G

27. Footnote a states "Suspected CCB presence was determined by observing..."
CCB's should have been analyzed directly with regard to radioactive constituents.